



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

646.3510  
Job Sheet 170036



Part No: 646.3510

Job Qty: 10 ea

Part Name: Strut



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 1/8/18

Job Tracking No:

Due Date: 2/2/18

Created By: Mario Poulin

Type: SOLD

Description:

Customer: Heliswiss Iberica SA (CHELI02)

Hangar 4, Lado Norte, Aeropuerto De Sabadell, Barcelona Sabadell, , 08205 Spain ph:011 34 93 720 6090  
fx:34-937-100130.

Note: DWG REV N/C 3 IPP REV:A 12.10.19 NEW ISSUE DD VERF:JLM

Ship Via:

### Bill of Materials

### Job Routing

| Op No | Operation          | Qty    | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off        |
|-------|--------------------|--------|------------|----------|-----------|---------|-----------------------|-----------|-----------------|
|       |                    |        |            |          | Setup hrs | Run Hrs | Workcenter / Supplier | Lead Time |                 |
| 90    | Start up Operation | 10 Ea  | 2/1/18     | 2/1/18   | 0.00      | 0.00    | Start Up Waterjet     |           | SE 18/01/08     |
| 110   | Waterjet           | 10 pcs | 2/1/18     | 2/1/18   | 0.00      | 0.39    | Waterjet1             |           | SE 18/01/08     |
| 120   | QC                 | 10 pcs | 2/1/18     | 2/1/18   | 0.00      | 0.00    | QC2 Waterjet-1        |           | SE 18/01/08     |
| 130   | QC                 | 10 pcs | 2/1/18     | 2/1/18   | 0.00      | 0.00    | QC8-1                 |           | 38              |
| 140   | Small Fab          | 10 pcs | 2/1/18     | 2/1/18   | 0.03      | 4.12    | Small Fab-1           |           | DYC 18/01/16    |
| 150   | QC                 | 10 pcs | 2/1/18     | 2/1/18   | 0.00      | 0.00    | QC5                   |           | EL              |
| 160   | Large Fab          | 10 pcs | 2/1/18     | 2/1/18   | 0.00      | 11.76   | Large Fab 1           |           | DYC 18/01/17    |
| 170   | QC                 | 10 pcs | 2/1/18     | 2/1/18   | 0.00      | 0.00    | QC9                   |           | EL              |
| 180   | QC                 | 10 pcs | 2/1/18     | 2/1/18   | 0.00      | 0.00    | QC5                   |           | EL              |
| 220   | SprayPaint         | 10 pcs | 2/2/18     | 2/2/18   | 0.00      | 0.37    | Spray Paint           |           | D.T. DWS 02-05  |
| 230   | QC                 | 10 pcs | 2/2/18     | 2/2/18   | 0.00      | 0.00    | QC14                  |           | 11 FEB 06 2018  |
| 240   | Packaging          | 10 pcs | 2/2/18     | 2/2/18   | 0.00      | 0.00    | Packaging3-1          |           | 9-89 SPL CCK104 |
| 250   | QC21-SA            | 10 Ea  | 2/2/18     | 2/2/18   | 0.00      | 0.00    | QC21                  |           |                 |

Part Op 110 - 1-Cut 646.3500 plate 2.75"x 1.50" as per Dwg Prog Rev: NE 2-Deburr if necessary

Descriptions: 140 - 1- Fabricate tube as per dwg USE DT10290 PUNCH

160 - Weld tube to plate as per dwg. DT9867 Weld end were tube is punch.

220 - Prime as per dwg (see note 3) Batch: 138374

240 - \*\*\*IDENTIFY AS PER APICAL MPP-120 BY STAMPING THE P# AND REV\*\*\*

### Job Allocations

| Operation             | Component Part   | Required | Inventory | Allocated | Std Qty |
|-----------------------|------------------|----------|-----------|-----------|---------|
| 90-Start up Operation | M304S16GA        | 0        | 151       | 0         | 0       |
| 140-Small Fab         | M304TR0.500W.049 | 8        | 140       | 0         | 0       |

5012845

### Part Specifications

| Spec No | Description | Target/Tolerance        | Limits         | Type  | Special Comments |
|---------|-------------|-------------------------|----------------|-------|------------------|
| 1       | Strut       | 2.750Inches $\pm$ 0.030 | 2.780<br>2.720 | 2,752 |                  |
| 2       | Strut       | 1.500Inches $\pm$ 0.030 | 1.530<br>1.470 | 1,504 |                  |

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                   |                                                                                                                                                                                |                                        |                                     |                                              |                                      |  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------|----------------------------------------------|--------------------------------------|--|
| Work Order: _____ | <b>DISPOSITION</b><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b>      |                                     |                                              |                                      |  |
| Part No. _____    |                                                                                                                                                                                | Skid-tube <input type="checkbox"/>     | Cross tube <input type="checkbox"/> | Water Jet <input type="checkbox"/>           | Engineering <input type="checkbox"/> |  |
| NCR No. _____     |                                                                                                                                                                                | Machining <input type="checkbox"/>     | Small Fab <input type="checkbox"/>  | Prod. Eng. Coord. <input type="checkbox"/>   | Quality <input type="checkbox"/>     |  |
|                   |                                                                                                                                                                                | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/>  | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/>       |  |
|                   |                                                                                                                                                                                | Large Fab <input type="checkbox"/>     | Composite <input type="checkbox"/>  | Supplier <input type="checkbox"/>            |                                      |  |

|              |               |                       |                             |
|--------------|---------------|-----------------------|-----------------------------|
| Date : _____ | Step #: _____ | QTY Effective : _____ | MRB (QSI042) Approval _____ |
|--------------|---------------|-----------------------|-----------------------------|

|                                  |             |
|----------------------------------|-------------|
| Description Work Order Deviation | Disposition |
|----------------------------------|-------------|

|                                                                                                                                                                |                                                                                                  |                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <div style="text-align: center;"> <p><b>Job No: 170036</b></p> <p><b>Mfg Date: 01/11/18</b></p> <p><b>Start up Operation</b></p> <p><b>646.3510</b></p> </div> | <p><b>Change No:</b></p> <p><b>Operation:</b></p> <p><b>Revision:</b></p> <p><b>PART NO:</b></p> | <p>Completed By _____</p> <p>Lead hand / Supervisor Approval Verification _____</p> <p>QC / QA Coordinator Approval _____</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Root Cause</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>Strut</b>                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Environment <input type="checkbox"/><br>Design <input type="checkbox"/><br>Doc/Data <input type="checkbox"/><br>Equip/Tooling <input type="checkbox"/><br>Handling/Pre <input type="checkbox"/><br>Material <input type="checkbox"/><br>Internal Transport <input type="checkbox"/><br>Tribal Knowledge <input type="checkbox"/><br>LOA <input type="checkbox"/><br>Substation <input type="checkbox"/><br>Past Expiry Date <input type="checkbox"/><br>Misidentified <input type="checkbox"/> | No Re-verification <input type="checkbox"/><br>Operator <input type="checkbox"/><br>Offset/Setup <input type="checkbox"/><br>Supplier <input type="checkbox"/><br>Training <input type="checkbox"/><br>Use for Testing <input type="checkbox"/><br>Poor Information <input type="checkbox"/><br>Rushing <input type="checkbox"/><br>Product Improvement <input type="checkbox"/><br>Process Improvement <input type="checkbox"/><br>Manufacturing Process <input type="checkbox"/><br>Past Due <input type="checkbox"/> | Pressur <input type="checkbox"/><br>Bending <input type="checkbox"/><br>Centre l <input type="checkbox"/><br>Cracks <input type="checkbox"/><br>Crimp/K <input type="checkbox"/><br>Cuffs <input type="checkbox"/><br>Crushing <input type="checkbox"/><br>Heat Tre <input type="checkbox"/><br>Wave/Twist in Tube <input type="checkbox"/><br>Marks/Chatter <input type="checkbox"/> | Misaligned/off center <input type="checkbox"/><br>Misread <input type="checkbox"/><br>Turning Sequence <input type="checkbox"/><br>Drawing <input type="checkbox"/><br>Finish <input type="checkbox"/><br>Misread <input type="checkbox"/><br>Turning Sequence <input type="checkbox"/><br>t Moved <input type="checkbox"/><br>t Lost/Missing <input type="checkbox"/><br>t Incorrect <input type="checkbox"/><br>er/Under tolerance <input type="checkbox"/><br>tside Dimensions <input type="checkbox"/><br>sitioned Wrong <input type="checkbox"/> |

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 Email: sales@dartaero.com  
 www.dartaerospace.com



**DART**  
**AEROSPACE**  
**S031107**

3

Strut

0.063Inches  $\pm$  0.010

0.073

0.053

0,059

Plex 1/8/18 12:45 PM dart.poulin.mario



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                            |                                                |                                               |
|--------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____ | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/> | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div> |                                                            |                                                |                                               |
| Date :                                                       | Step #:                                                                                                                                                                            | QTY Effective :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                            | MRB (QSI042) Approval                          |                                               |
| Description Work Order Deviation                             |                                                                                                                                                                                    | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                            | Completed By                                   |                                               |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                            | Lead hand / Supervisor Approval Verification   |                                               |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                            | QC / QA Coordinator Approval                   |                                               |
|                                                              |                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                            |                                                |                                               |
| Root Cause                                                   |                                                                                                                                                                                    | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                            |                                                |                                               |
| Environment <input type="checkbox"/>                         | No Re-verification <input type="checkbox"/>                                                                                                                                        | Pressure/Forced <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Temperature/Cure <input type="checkbox"/>                  | Power Loss/Surge <input type="checkbox"/>      | Positioned Wrong <input type="checkbox"/>     |
| Design <input type="checkbox"/>                              | Operator <input type="checkbox"/>                                                                                                                                                  | Bending <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Set-up <input type="checkbox"/>                            | Folio/Program <input type="checkbox"/>         | Outside Dimensions <input type="checkbox"/>   |
| Doc/Data <input type="checkbox"/>                            | Offset/Setup <input type="checkbox"/>                                                                                                                                              | Centre Not Concentric <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | BOM/Route <input type="checkbox"/>                         | Grain <input type="checkbox"/>                 | Over/Under tolerance <input type="checkbox"/> |
| Equip/Tooling <input type="checkbox"/>                       | Supplier <input type="checkbox"/>                                                                                                                                                  | Cracks <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Broken/Damage/Defect <input type="checkbox"/>              | Weld <input type="checkbox"/>                  | Part Incorrect <input type="checkbox"/>       |
| Handling/Pre <input type="checkbox"/>                        | Training <input type="checkbox"/>                                                                                                                                                  | Crimp/Kink/Ripple/Wave <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Inspection Incomplete/Unqualified <input type="checkbox"/> | Wrong Stock Pulled <input type="checkbox"/>    | Part Lost/Missing <input type="checkbox"/>    |
| Material <input type="checkbox"/>                            | Use for Testing <input type="checkbox"/>                                                                                                                                           | Cuffs <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Contamination <input type="checkbox"/>                     | Out of Sequence <input type="checkbox"/>       | Part Moved <input type="checkbox"/>           |
| Internal Transport <input type="checkbox"/>                  | Poor Information <input type="checkbox"/>                                                                                                                                          | Crushing <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Countersink <input type="checkbox"/>                       | Off-set <input type="checkbox"/>               | Drawing <input type="checkbox"/>              |
| Tribal Knowledge <input type="checkbox"/>                    | Rushing <input type="checkbox"/>                                                                                                                                                   | Heat Treat <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Cut Too Short <input type="checkbox"/>                     | Mislabeled <input type="checkbox"/>            | Finish <input type="checkbox"/>               |
| LOA <input type="checkbox"/>                                 | Product Improvement <input type="checkbox"/>                                                                                                                                       | Wave/Twist in Tube <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Instructions Incomplete/Unclear <input type="checkbox"/>   | Fit/Function <input type="checkbox"/>          | Misread <input type="checkbox"/>              |
| Substation <input type="checkbox"/>                          | Process Improvement <input type="checkbox"/>                                                                                                                                       | Marks/Chatter <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Drill Holes <input type="checkbox"/>                       | Misaligned/off center <input type="checkbox"/> | Turning Sequence <input type="checkbox"/>     |
| Past Expiry Date <input type="checkbox"/>                    | Manufacturing Process <input type="checkbox"/>                                                                                                                                     | OTHER :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                            |                                                |                                               |
| Misidentified <input type="checkbox"/>                       | Past Due <input type="checkbox"/>                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                            |                                                |                                               |